

2.3.2) $5 + \sqrt{-4}$

Standard form : $5 + 2i$

Real Part Imaginary Part

2.3.19) e^{i3t}

$$e^{i3t} = \cos 3t + i \sin 3t$$

2.3.37) $e^{i(t+6\pi)}$
 $n=3$ $e^{i2\pi n} = 1$

$$e^{i(t+2\pi n)} = e^{i2\pi n} e^{it} = (\cos 2\pi n + i \sin 2\pi n) \cdot e^{it} = 1 \cdot e^{it} + 0 \cdot e^{it} = e^{it}$$

$$(\cos 2\pi \cdot 3 + i \sin 2\pi \cdot 3) \cdot e^{it} = 1 \cdot e^{it} + 0 \cdot e^{it} = e^{it}$$

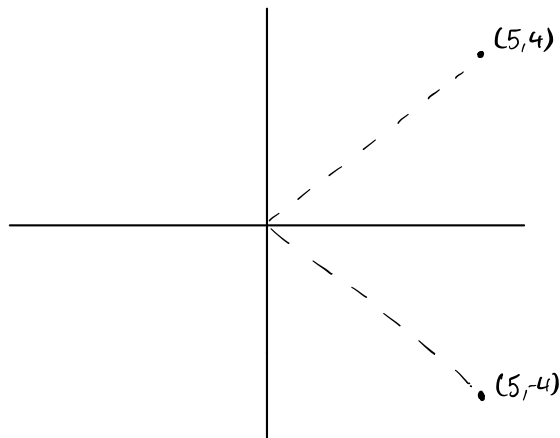
$$e^{i(t+2\pi)} = e^{it}$$

2.3.8) $5 + 4i$

a.) $\bar{z} = 5 - 4i$

b.)

c.) $|z| = \sqrt{41}$
 $|\bar{z}| = \sqrt{41}$



2.3.13) $u = 3 - 5i$, $v = -1 + 4i$ $\overline{u+v} = \bar{u} + \bar{v}$

$$u + v = (3 - 1) + (-5i + 4i)$$

$$(u + v) = 2 - i$$

$$\bar{u} = 3 + 5i$$

$$\bar{v} = -1 - 4i$$

$$\overline{u+v} = \bar{u} + \bar{v}$$

$$= (3 - 1) + (5i - 4i)$$

$$\overline{u+v} = 2 + i$$

$$u + v = 2 - i$$

$$\overline{u+v} = 2 + i$$

2.3.22 e^{-it} $e^{it} = \cos(t) + i\sin(t)$: $e^{-it} = \cos(t) - i\sin(t)$

$e^{-i6t} = \cos(6t) - i\sin(6t)$

2.3.25 $e^{i\pi}$ $e^{it} = \cos(t) + i\sin(t)$
 $= \cos(\pi) + i(\sin(\pi)) = 0 + i$

$e^{i0} = 1$

2.3.34 $e^{i(t-\pi)}$ $e^{it} = \cos(t) + i\sin(t)$

$e^{it} \cdot e^{-i\pi} : e^{it} \cdot (\cos(-\pi) + i\sin(-\pi))$
 $e^{it} \cdot (0 - i) = -ie^{it}$

$e^{i(t-\pi)} = -ie^{it}$